



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,493	06/29/2001	Alan F. Graves	08-891912US1	6350
7590	11/03/2006		EXAMINER [REDACTED]	BELLO, AGUSTIN
Gowling Lafleur Henderson LLP 160 Elgin Street Suite 2600 Ottawa, ON K1P 1C3 CANADA			ART UNIT [REDACTED]	PAPER NUMBER 2613

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/893,493	GRAVES ET AL.
	Examiner	Art Unit
	Agustin Bello	2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 16 August 2006.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-26 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-6, 8-20, and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hugenberg (U.S. Patent No. 6,714,545) in view of Hung (U.S. Patent No. 6,583,901).

Regarding claims 1, 16-20, 22-23, Hugenberg teaches a plurality of access multiplexers (reference numeral 28 in Figure 2), each access multiplexer operable to provide multiplexing of data packets from a plurality of end-users onto a wavelength according to a DWDM plan (column 7 lines 38-41); a photonic switch (reference numeral 40 in Figure 2), coupled to the access multiplexers via fiber optic cable (reference numeral 38 in Figure 2) for carrying the wavelengths, and operable to switch the wavelengths into dense wavelength division multiplexed (DWDM) signal for transmission (column 7 lines 38-41); and a core node (reference numeral 14 in Figure 2), coupled to the photonic switch (reference numeral 40 in Figure 2) via a fiber optic cable (reference numeral 24 in Figure 2) for carrying the DWDM signal, and operable to route the data packets within the communications network or out to a long haul network. Hugenberg differs from the claimed invention in that Hugenberg fails to specifically teach what the applicant refers to as an S-DWDM wavelength having an optical precision capable of being interleaved into the optical frequency constraints of a dense wavelength division multiplex wavelength plan used in the core network. However, Hung, in the same field of optical communication systems,

teaches that providing a wavelength having an optical precision capable of being interleaved into the optical frequency constraints of a dense wavelength division multiplex wavelength plan used in the core network is well known in the art (see Figures 20-23, column 7 line 64 – column 8 line 2, column 9 lines 2-6, column 17 lines 45-49, 55-56). One skilled in the art would have been motivated to employ a wavelength having an optical precision capable of being interleaved into the optical frequency constraints of a dense wavelength division multiplex wavelength plan used in the core network in the device of Hugenberg in order to avoid exhausting the bandwidth of the fiber (column 2 lines 47-50 of Hung). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ a wavelength having an optical precision capable of being interleaved into the optical frequency constraints of a dense wavelength division multiplex wavelength plan used in the core network as taught by Hung in the device of Hugenberg.

Regarding claims 2, 4, the combination of Hugenberg and Hung teaches that the photonic switch includes a multiwavelength source (reference numeral 1362 in Figure 2 of Hung) for generating DWDM quality wavelengths for supplying the access multiplexers with unmodulated wavelengths upon which to multiplex data packets.

Regarding claims 3, 24, Hugenberg teaches that the core node includes a photonic switch and a packet switch (reference numeral 32 in Figure 2).

Regarding claim 5, Hugenberg teaches that the data packets are Ethernet packets (e.g. Ethernet throughout and as evidenced by Ethernet switch reference numeral 42 in Figure 2).

Regarding claim 6, Hugenberg teaches that a portion of the data packets are transmitted from a particular end-user to a particular access multiplexer over a local loop, connecting the

particular end-user to the particular access multiplexer, using a digital subscriber line DSL protocol (column 3 lines 32-33).

Regarding claim 7, Hugenberg teaches that the type of DSL is VDSL (column 3 lines 32-33).

Regarding claims 8, 9, the photonic switches and core node of Hugenberg are clearly capable of switching at the wavelength, group of wavelength, and fiber level.

Regarding claim 10, the core node of Hugenberg is clearly capable of switching data packets based on a service to which the data packet pertains.

Regarding claim 11, Hugenberg teaches a plurality of photonic switches, each of the photonic switches connected to at least one other photonic switch and the core node (inherent in a larger overall system of Hugenberg).

Regarding claim 12, Hugenberg teaches a plurality of core nodes, each of core nodes connected to at least one other core node (inherent in a larger overall system of Hugenberg).

Regarding claims 13-15, 25 the combination of Hugenberg and Hung differs from the claimed invention in that it fails to specifically teach that the core node includes a wavelength converter for converting one wavelength to another wavelength to provide an end-to-end photonic connection across the network. However, the use of wavelength converters in optical communication networks is well known in the art. One skilled in the art would have been motivated to employ wavelength converters in order to allow interconnections between networks. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ wavelength converts in the combination of Hugenberg and Hung.

Regarding claim 21, Hugenberg differs from the claimed invention in that Hugenberg fails to specifically teach that N is 40 and s is 5. However, being that the system taught by Hugenberg complies with DWDM standards, it is clear that one skilled in the art could have selected any number of channels and an associated channel spacing including a configuration of 40 channels with a spacing of 5.

Regarding claim 26, Hugenberg teaches that the photonic switch (reference numeral 40 in Figure 2) includes a first plurality of input ports and a second plurality of output ports, with the first being greater than the second, whereby the photonic switch effects concentration of the wavelengths from the access multiplexers (as seen in Figure 2).

Response to Arguments

3. Applicant's arguments filed 8/16/06 have been fully considered but they are not persuasive.
4. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The applicant argues that Hugenberg's USAM fails to read on the applicant's claimed "access multiplexer." However, the examiner disagrees. Hugenberg's access multiplexer performs just like that of the claimed invention in that it is operable to provide conversion and optical multiplexing of data packets from a plurality of end users into, by virtue of Hugenberg's disclosure that the invention is capable of supporting DWDM, a DWDM signal. The deficiency in Hugenberg is that, as clearly noted in the office action, it fails to specifically teach applicant's

claimed multiplexing of “sparse-DWDM” signals. To meet this deficiency, the examiner has turned to Hung for the creation of S-DWDM wavelengths, wavelengths which have an optical precision which are clearly *capable* of being interleaved into the optical frequency constraints of a DWDM wavelength plan of the core network.

Being that Hugenburg’s USAM works to convert data packets received from a plurality of users into optical signals, then seeks to optically multiplex those signals so that they are supportive of a DWDM multiplexing scheme, its stands to argue that the conversion means within Hugenburg’s USAM in general produces a wavelength that is at least capable of being interleaved into the frequency constraints of a DWDM wavelength plan of the core network. Admittedly, Hugenburg fails to spell this out. However, Hung in no uncertain terms, provides conversion means capable of producing relatively coarsely spaced wavelengths, but are generated with optical precision in terms of carrier frequency so that they can map directly to tight DWDM frequency constraints (column 17 line 50 - column 18 line 10 of Hung). Given the above, the examiner maintains that the combination of Hugenburg’s USAM and Hung’s precise optical sources obviate the claimed invention.

Furthermore, applicant’s argument that Hugenburg’s photonic switch is actually an electrical element is unfounded. Hugenburg clearly discloses that input to and the output from the photonic switch are optical signals. Therefore, applicant’s arguments regarding the all-optical non-blocking features of the claimed photonic switch, while interesting and informative, fail to persuade the examiner that Hugenburg’s photonic switch does meet the limitations of the claimed invention. This is especially true since the cited features are not positively recited in the claims.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB



AGUSTIN BELLO
PRIMARY EXAMINER